REMARKS

Contrary to the Examiner's statement that claims 1-20 were pending, claims 1-35 were in fact pending, claims 1, 13, 18, 23, 26, 30, and 35 have been amended, and claims 19, 20, 25, 28, and 29 have been canceled. Reexamination and reconsideration of the present application is respectfully requested.

At the outset, the Examiner is thanked for the thorough review and consideration of the present application. The Examiner's Office Action dated April 14, 2003 has been received and the contents carefully noted.

In the Office Action, the Examiner rejected claim 35 under 35 USC 112, second paragraph as being indefinite. This rejection is respectfully traversed.

Regarding the objection to claim 35, Applicants respectfully submit that "normal/abnormal" is described throughout the specification. For example, page 18, line 19 reads: "...when there was a request for re-transmission of the modification data, abnormal ending is reported to the control center 30 (S710) and this rewriting device side processing is terminated." Page 29, line 8 reads: "...determines whether the control program is normal by checking the received check sum of the control program." Applicants submit that claim 35 complies with 35 USC 112, second paragraph and respectfully request that the rejection be withdrawn.

The Examiner rejected claims 1, 8, 13, 15, 16, 18, 19, 23, 25, and 28 under 35 USC 102(b) as being anticipated by Schmitz (US Patent No. 5,473,540). This rejection is respectfully traversed.

Claim 1, as amended, is allowable at least for the reason that claim 1 recites a combination of features including, for example,

> "...legitimacy determining means in data communication with the rewriting device and for acquiring a relationship between the predetermined identification information and the associated information of the rewriting device and for comparing the acquired relationship with the association relationship between the predetermined identification information and the association information stored in the storing means, and transmitting the predetermined access information stored in the storing means to the rewriting device when the acquired relationship matches the association relationship stored in the storing means thereby to one of enable and disable rewriting operation of the rewriting device." [emphasis added]

Claim 13, as amended, is allowable at least for the reason that claim 13 recites a combination of features including, for example,

> "...legitimacy determining means in data communication with the rewriting device and for acquiring an association relationship between the identification information and the associated information related to the identification information, and transmitting rewriting permission to the rewriting device when the acquired association relationship corresponds to the stored association relationship stored in the storing means, thereby to control rewriting operation of the rewriting device." [emphasis added]

Claim 18, as amended, is allowable at least for the reason that claim 18 recites a combination of features including, for example,

> "...wherein the processing unit is further programmed to determine whether the rewriting device is legitimate, and to permit the rewriting device to rewrite the modification data only upon determining that the rewriting device is legitimate, and
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> wherein the processing unit is further programmed to compare the stored association relationship stored in the storing means with the association relationship received from the rewriting device, and to determine that the rewriting device is legitimate when the compared association relationships match." [emphasis added]

Claim 23, as amended, is allowable at least for the reason that claim 23 recites a combination of features including, for example,

> "...control information transmitting means for acquiring the control information from the external device after executing predetermined processing with the electronic control unit in response to the rewriting permission, and transmitting the control information to the electronic control unit."

Claim 26, as amended, is allowable at least for the reason that claim 26 recites a combination of features including, for example,

> "...wherein the rewriting device ~~converts~~ ~~data~~ rewrites the control information received from the electronic control unit based on the access information upon receiving the access information from the control center and transmits the ~~converted~~ ~~data~~ rewritten control information to the electronic control unit to enable the electronic control unit to determine whether the rewriting device is legitimate." [emphasis added]

None of the cited references teaches or suggests each and every element of the claims.

The present invention is directed to control (enable or disable) rewriting of control information of an electronic control unit 10 based on whether the operation of the rewriting device 20 is authorized. An example of unauthorized operation is a line connected between the rewriting device 20 and the control center 30 from other than a regular work site.

The operation of the legitimacy determining means is described for example on page 23, line 11 which reads: "[w]hen the association relationship between this ID and telephone number matches the association relationship stored in the database (S860,

S870: YES), the control center 30 determines that the rewriting device 20 is legitimate and transmits the function f, which is access information (S890)." For this purpose, a control center 30 checks the legitimacy of the rewriting device 20. "As a result, even when an attempt is made to access the control center 30 or the ECUs 11 through 14 from the rewriting device 20 using illegitimate information, the control information rewriting prevention can be prevented." Specification at page 24, line 25.

More specifically, beginning at page 8, line 11 of the specification of the present invention (claims 1-12 and 13-17) the control center 30 receives identification information (e.g., ID) and acquires the associated information (e.g., phone number) from the rewriting device 20. Next, on page 8, line 22, the control center 30 determines whether a relationship between the received and acquired information matches with a stored association relationship. Finally, on page 9, line 3, and page 10, line 9, the rewriting operation of the rewriting device 20 is controlled (enabled/disabled) based on the determination result. Thus, the present invention prevents unauthorized use of the rewriting device and checks its identity by using two pieces of information (ID and phone number) and their association relationship.

In Schmitz, an electronic controller 16 in a vehicle is programmed by a portable programmer 20 under control of a host computer 12 in an assembly line 1. Column 5, lines 57-67. The host computer 12 reads the vehicle type identification code from the second memory 24, 124 by means of a detector 42 incorporated in the portable programmer 20 and verifies that it corresponds to the vehicle type scheduled to be at that point on the assembly line at the time of the test. Column 7, lines 47-62. Schmitz fails to discuss any possible scenario in which there is unauthorized use of the portable

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programmer 20, and in which the identity of the portable programmer 20 is checked by the host computer 12 by using two pieces of information and their association relationship as in claims 1 and 13.

Further, as recited in claim 23, the rewriting device 20 of the present invention forwards the control data of the external device (control center) 30 to the electronic control unit 10 only after performing predetermined processing with the electronic control unit 10 in response to permission signals received from the external device 30. *See also* page 7, line 12, page 8, line 22, and line 15 of the specification.

In Schmitz, the host computer 12 can transfer the new routines and data values to the programmer 20 at the time it instructs the programmer 20 of the vehicle type before it, so that the data values and routines are transferred to the controller 16 at the same time as the program data from the programmer 20. Column 7, lines 30-40. However, Schmitz fails to teach the claimed detailed predetermined processing between the controller 16 and the programmer 20 before executing the data transmission in response to data writing permission from host computer 12 as in claim 23.

Claim 26 was rejected in the body of the rejection, but not in the statement of the rejection. In claim 26, the rewriting device 20 receives the access information, converts/rewrites the control information received from the control center 30 based on the access information and transmits the converted control information to the electronic control unit 10, and the rewriting device 20 rewrites the control information upon receiving access information from the control center 30. Specification at page 9, line 3-23, page 10, lines 9-19.

In contrast, in Schmitz the vehicle identification code is transferred back to the second memory 24, 124 by the programming circuitry 56. However, Schmitz fails to teach a rewriting device that converts received control information and rewrites the control information upon receiving access information as recited in claim 26.

Schmitz does not provide legitimacy determining means as recited in claims 1 and 13, a processing unit that determines the legitimacy of a rewriting device as recited in claim 18, control information transmitting means and predetermined processing as recited in claim 23, and a rewriting device that converts received data as in claim 26. Instead, the electronic controller in Schmitz is suitable for a variety of vehicle types and can be programmed entirely under computer control to minimize the possibility of human error.

It can thus be understood that Schmitz does not in any way anticipate the essential features of the present invention as set out in independent claims 1, 13, 18, 23, and 26. Note that the rejection of claims 25 and 28 is deemed moot in view of the cancellation of these claims.

Moreover, as claims 8, 15, 16, and 19 each depend from independent claims 1, 13, 18, and 23, each of these claims is also allowable for the same reasons as their respective base claims.

As the cited reference fails to anticipate the present invention as recited in independent claims 1, 13, 18, and 23, Applicants respectfully request that the rejection of claims 1, 8, 13, 15, 16, 18, 19, and 23 under 35 USC 102(b) be withdrawn.

The Examiner rejected claims 2 and 3 under 35 USC 103(a) as being unpatentable over Schmitz in view of Takagi et al. (US Patent No. 6,285,948). The rejection is respectfully traversed.

The Examiner states that Schmitz fails to disclose a rewriting device and electronic control unit as recited in claims 2 and 3. The Examiner cites Takagi et al. in an attempt to cure the deficiencies of Schmitz. Takagi et al. may teach a program rewriting function and devices for preventing unauthorized intrusion and burglary, but Takagi et al. fails to discuss checking the identity of the rewriting tool 14 by the microcomputer 8 by using two pieces of information (identification information and associated information) and their association relationship as in claim 1. Thus, Takagi et al. fails to cure the deficiencies of Schmitz.

It can thus be understood that the combination of references does not in any way make obvious the essential features of the present invention as set out in independent claim 1.

Moreover, as claims 2 and 3 each depend from independent claim 1, each of these claims is also allowable for the same reasons as their respective base claims.

As the cited references fail to make obvious the present invention as recited in dependent claims 2 and 3, Applicants respectfully request that the rejection of claims 2 and 3 under 35 USC 103(a) be withdrawn.

The Examiner rejected claims 4 and 7 under 35 USC 103(a) as being unpatentable over Schmitz in view of Deo (US Patent No. 5,594,227). The rejection is respectfully traversed.

The Examiner states that Schmitz fails to disclose an electronic control unit and control center as recited in claims 4 and 7. The Examiner cites Deo in an attempt to cure the deficiencies of Schmitz. Deo may teach a smart card protection system for protecting against unauthorized access of data contents, but Deo fails to discuss checking the

identity of the comparator 42 by the CPU 40 by using two pieces of information and their association relationship as in claim 1. Thus, Deo fails to cure the deficiencies of Schmitz.

It can thus be understood that the combination of references do not in any way make obvious the essential features of the present invention as set out in independent claim 1.

Moreover, as claims 4 and 7 each depend from independent claim 1, each of these claims is also allowable for the same reasons as their respective base claim.

As the cited references fail to make obvious the present invention as recited in dependent claims 4 and 7, Applicants respectfully request that the rejection of claims 4 and 7 under 35 USC 103(a) be withdrawn.

The Examiner rejected claim 5 under 35 USC 103(a) as being unpatentable over Schmitz in view of Berra et al. (US Patent No. 5,278,759). The rejection is respectfully traversed.

The Examiner states that Schmitz fails to disclose the associated information and the rewriting device as recited in claim 5. The Examiner cites Berra et al. in an attempt to cure the deficiencies of Schmitz. Berra et al. may teach a smart card protection system for protecting against unauthorized access of data contents, but Berra et al. fails to discuss checking the identity of the Diagnostic Readout Box (DRB II) by the microprocessor chip Z144 by using two pieces of information and their association relationship as in claim 1. Thus, Berra et al. fails to cure the deficiencies of Schmitz.

It can thus be understood that the combination of references do not in any way make obvious the essential features of the present invention as set out in independent claim 1.

Moreover, as claim 5 depends from independent claim 1, this claim is also allowable for the same reasons as its respective base claim.

As the cited references fail to make obvious the present invention as recited in dependent claim 5, Applicants respectfully request that the rejection of claims 5 under 35 USC 103(a) be withdrawn.

The Examiner rejected claim 6 under 35 USC 103(a) as being unpatentable over Schmitz in view of Flick (US Patent No. 6,719,551). The rejection is respectfully traversed.

The Examiner states that Schmitz fails to disclose the control center as recited in claim 6. The Examiner cites Flick in an attempt to cure the deficiencies of Schmitz. Flick may teach a smart card protection system for protecting against unauthorized access of data contents, but Flick fails to discuss checking the identity of the data bus 26 by the CPU 33 by using two pieces of information and their association relationship as in claim 1. Thus, Flick fails to cure the deficiencies of Schmitz.

It can thus be understood that the combination of references do not in any way make obvious the essential features of the present invention as set out in independent claim 1.

Moreover, as claim 6 depends from independent claim 1, this claim is also allowable for the same reasons as its respective base claim.

As the cited references fail to make obvious the present invention as recited in dependent claim 6, Applicants respectfully request that the rejection of claim 6 under 35 USC 103(a) be withdrawn.

The Examiner rejected claims 10, 14, 17, 21, and 22 under 35 USC 103(a) as being unpatentable over Schmitz. The rejection is respectfully traversed.

The Examiner states that Schmitz fails to disclose the control center as recited in claims 10, 14, 17, 21, and 22, but that its features are obvious. Schmitz may teach a host computer 12, but Schmitz fails to discuss any possible scenario in which there is unauthorized use of the portable programmer 20 and in which checking the identity of the portable programmer 20 is checked by the host computer 12 by using two pieces of information and their relationship of association as in claims 1 and 13.

It can thus be understood that the Schmitz reference does not in any way make obvious the essential features of the present invention as set out in independent claims 1 and 13.

Moreover, as claims 10 and 14 each depend from independent claims 1 and 13, each of these claims is also allowable for the same reasons as their respective base claims.

As the cited references fail to make obvious the present invention as recited in dependent claims 10, 14, 17, 21, and 22, Applicants respectfully request that the rejection of claims 10, 14, 21, and 22 under 35 USC 103(a) be withdrawn.

The Examiner rejected claim 12 under 35 USC 103(a) as being unpatentable over Schmitz in view of Berra (US Patent No. 5,787,367). The rejection is respectfully traversed.

The Examiner states that Schmitz fails to disclose the rewriting device as recited in claim 12. The Examiner cites Berra in an attempt to cure the deficiencies of Schmitz. Berra may teach a secured programming system and method for controlling

reprogramming of on-board vehicle computers, but in column 6, line 34 to column 7, line 63, Berra fails to discuss checking the identity of the methodology 60 by the authorized database 30 by using two pieces of information and their association relationship as in claim 1. Thus, Berra fails to cure the deficiencies of Schmitz.

It can thus be understood that the combination of references does not in any way make obvious the essential features of the present invention as set out in independent claim 1.

Moreover, as claim 12 depends from independent claim 1, this claim is also allowable for the same reasons as its respective base claim.

As the cited references fail to make obvious the present invention as recited in dependent claim 12, Applicants respectfully request that the rejection of claim 12 under 35 USC 103(a) be withdrawn.

The Examiner rejected claims 29, 30, 33, and 34 under 35 USC 103(a) as being unpatentable over Schmitz in view of Koelle et al. (US Patent No. 5,802,485). The rejection is respectfully traversed.

Claim 30, as amended, is allowable at least for the reason that claim 30 recites a combination of features including, for example,

> "...wherein the electronic control unit determines whether the rewriting device is legitimate by receiving information which is formed by the rewriting device based on the predetermined access information received from the control center." [emphasis added]

None of the cited references singly or combination teaches at least these features of the claims.

The Examiner states that Schmitz fails to disclose the legitimacy determining means as in claim 29 and the control information rewriting system as recited in claims 30, 33, and 34. The Examiner cites Koelle et al. in an attempt to cure the deficiencies of Schmitz. In claims 30-34, the rewriting device 20 forms information based on the predetermined access information necessary for rewriting the control information in the electronic control unit 10. The electronic control unit 10 determines the legitimacy of the rewriting device 20 based on the information received.

In Schmitz the tester 54 reads the vehicle identification code stored in the second memory 24, 124 and stores it temporarily in the memory 52. If the fitted controller 16 requires reprogramming, the programming circuitry 56 erases the second memory 24, 124 of the controller 16, if necessary, and then transfers the appropriate new program data to it from the memory 52 in accordance with the identified vehicle type code. Column 8, lines 18-35.

In Koelle et al. in interrogation 59, the computer waits for a specific programming enabling code to be transmitted to the engine control device 10 from the external communication device 24 by receiving a specific programming enable code from the external device 24.

However, neither reference teaches forming information (for use in checking legitimacy) based on access information received from the control center to rewrite the control information. That is, neither reference teaches using information from the control center in the communication processing between the electronic control unit and the rewriting device. Thus, Koelle et al. fails to cure the deficiencies of Schmitz.

Additionally, as claim 29 has been cancelled, the rejection of claim 29 is now moot.

It can thus be understood that the combination of references do not in any way make obvious the essential features of the present invention as set out in independent claim 30.

Moreover, as claims 33 and 34 depends from independent claim 30, each of these claims is also allowable for the same reasons as its respective base claim.

As the cited references fail to make obvious the present invention as recited in independent claim 30 and dependent claim 33 and 34, Applicants respectfully request that the rejection of claims 30, 33, and 34 under 35 USC 103(a) be withdrawn.

The Examiner rejected claims 31 and 32 under 35 USC 103(a) as being unpatentable over Schmitz in view of Koelle et al. and further in view of Henn et al. (US Patent No. 4,751,633). The rejection is respectfully traversed.

The Examiner states that the combination of Schmitz and Koelle et al. fails to disclose the electronic control unit as recited in claims 31 and 32. The Examiner cites Henn et al. in an attempt to cure the deficiencies of Schmitz and Koelle et al. Henn et al. may teach an externally reprogrammable vehicular microcomputer with hardware lock-out of unauthorized memory modifications, but Henn et al. fails to teach using information from the programming unit 1 in the communication processing between the control unit 2 and the release-enable bus 13 as in claim 30. Thus, Henn et al. fails to cure the deficiencies of Schmitz and Koelle et al.

It can thus be understood that the combination of references do not in any way make obvious the essential features of the present invention as set out in independent claim 30.

Moreover, as claims 31 and 32 each depend from independent claim 30, these claims are also allowable for the same reasons as their respective base claim.

As the cited references fail to make obvious the present invention as recited in dependent claims 31 and 32, Applicants respectfully request that the rejection of claims 31 and 32 under 35 USC 103(a) be withdrawn.

The Examiner rejected claims 35 under 35 USC 103(a) as being unpatentable over Schmitz in view of Lesesky et al. (US Patent No. 6,378,959). The rejection is respectfully traversed.

Claim 35, as amended, is allowable at least for the reason that claim 35 recites a combination of features including, for example,

> "...wherein the control center is programmed to determine whether the control program needs to be normally rewritten by checking a check sum of the control program transmitted from the electronic control unit through the rewriting device along with a vehicle specific information, and to transmit a new control program to the rewriting device so that the new control program is rewritten in the nonvolatile memory when determining that the control program ~~is~~ has been abnormally rewritten." [emphasis added]

None of the cited references singly or in combination teaches or suggests at least these features of the claims.

In the present invention, the control center 30 determines whether the control program in the electronic control unit 10 needs to be rewritten (e.g., because the program

is broken) based on the check sum of the control program with the vehicle specific information (VIN), and transmits a new control program to the rewriting device if the determination result indicates the necessity of rewriting. *See* page 29 of the specification.

In Schmitz the communications link 60 is provided to enable the unit 50 to communicate with the host computer 12 during testing or programming. For example, it can be used to transfer new program data to the memory 56 of the unit 50 to enable design changes to be incorporated to vehicles during servicing or replacement of the controller 16. *See* column 8, lines 36-41.

In Lesesky et al. although a variety of techniques can be utilized to determine if the signals provided to the spread spectrum transceiver 2030 are inaccurate, the self-diagnostic means 2060 of one embodiment analyzes the signals to determine: (1) if the data is nonsensical, and/or (2) if the check sum as well as any address data associated with the signals are incorrect. Column 20, lines 3- 29.

Neither reference teaches a control center programmed to determine whether the control program is normal by checking whether a check sum transmitted determines the necessity of rewriting as recited in claim 35.

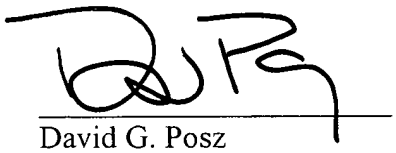
It can thus be understood that the combination of references do not in any way make obvious the essential features of the present invention as set out in independent claim 35.

As the cited references fail to make obvious the present invention as recited in independent claim 35, Applicants respectfully request that the rejection of claim 35 under 35 USC 103(a) be withdrawn.

Claims 11, 20, 24, and 27 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants respectfully submit that amended independent claims 1, 23, and 26, and thus dependent claims 11, 24, and 27 are allowable over the cited references. Independent claim 18 has been rewritten to incorporate the features of claims 19 and 20 and is therefore also believed to be allowable. Claims 21 and 22, which depend from amended claim 18, are also allowable over the cited references.

In view of the above remarks, the present application is believed to be in condition for allowance. A prompt notice to that effect is respectfully requested. A two-month extension and the requisite fee are included with this Amendment. Although no additional fees are believed to be due, permission is hereby given to charge any unforeseen fees to deposit account 50-1147.

Respectfully submitted,



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